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Supreme Court of the United States

OCTOBER TERM, 1937.

No. 453

GENERAL ELECTRIC COMPANY,

Petitioner,

vs.

WABASH APPLIANCE CORPORATION, ABE ADLER AND ABE M. PARKER.

PETITIONER'S REPLY MEMORANDUM.

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The principal arguments advanced in respondents' brief are believed to be sufficiently answered in our main brief. However we feel that a short reply, to point out certain mistakes of fact contained in respondents' brief and to clarify the issues presented, may be helpful.

For the sake of convenience we shall consider these issues in the order followed in our main brief.

POINT I.

The Coolidge Battersea defense has not been established.

In spite of the fact that this is the defense upon which the court below held the Pacz claims invalid, respondents' brief postpones all discussion of it until after it has dealt with various other miscellaneous defenses, and then fails

to answer the points which we have made in our brief, showing that this defense has not been sustained.

Concerning the "fact" testimony relied upon in support of this defense, we have pointed out that it is worthless because it is pure "recollection" testimony, does not even purport to give dates earlier than Pacz for the alleged occurrences, and is wholly without corroboration of any kind, documentary or otherwise (main brief, pp. 18-21).

Respondents have not even attempted to answer this point. They have contented themselves with quoting the recollection testimony upon which they rely (bottom of p. 29 to top of p. 30).

Concerning the "expert" testimony of Laise upon which respondents rely in support of this defense, including Laise's references to the filaments of Exhibit K, we have shown that it too is worthless since Laise made it clear that when he was referring to the Battersea process of the Coolidge patent, he did not mean that process at all, but a Battersea process *reconstructed to incorporate alkali-silicate into the oxid in accordance with the teachings of Pacz* (our main brief, pp. 21-28).

Being at a loss for an answer to this, respondents explain that they do not wish to "burden the Court" with a detailed answer, and make "the unqualified statement that plaintiff's charges are untrue, and that there is nothing in the Laise testimony or elsewhere which supports them" (p. 35). Since this unqualified statement is *unsupported by any references to the record*, it can serve no purpose.

Our "charges", as respondents are pleased to call them, are fully supported by citations to, and quotations from, the record (see pp. 25, 26 of our main brief). Respondents are simply *unable* to answer them.

So, as we have said, respondents have failed signally to answer any of the points made in our main brief in support of our proposition that the Coolidge Battersea defense has not been established.

Probably realizing the dangers of relying, as Laise did, upon a reconstruction of the Coolidge Battersea process in order to produce the Pacz result, respondents now argue (brief, p. 29) that the Battersea crucible instead of adding merely silica and alumina to the tungsten oxid, as Coolidge said, would in fact *add alkalis as well*, and thus itself provides the necessary alkali-silicate to produce the Pacz result. The argument is based upon a misstatement of Dr. Jeffries' testimony plus a misstatement of the Pacz process. Respondents say (brief, p. 29):

> "Jeffries definitely says in his answer to Q559 (R. 239), that the Battersea wire contains *a minute amount of alkali silicate*, and, of course, only a minute amount is added by Pacz (as low as 1/20th *i. e.*, 0.05 of one per cent.)." (Emphasis respondents'.)

To the same effect see respondents' brief, pages 34-35.

In the first place Dr. Jeffries did *not* say that "the Battersea *wire* contains *a minute amount of alkali-silicate* * * *." What he said was that in view of the composition of the clay of the Battersea crucible, the tungsten *oxid*, could not derive from that source more than a minute amount of alkali-silicate, and therefore "*could not contain more than* a minute amount of alkali-silicate" (R. 239), or in other words, could not contain enough to have any appreciable effect upon the grain structure of the wire that is ultimately made from the oxid.[1]

In the second place it is not true that "only a minute amount [of alkali-silicate] is added by Pacz (as low as 1/20th *i. e.*, 0.05 of one per cent.)", as respondents say. The Pacz addition of alkali-silicate is to the *oxid* and is relatively large (see, for example, the substantial amounts

[1] Concerning respondents' quotation, bottom of page 28, from the Coolidge patent, it should be noted that what Coolidge is there referring to is "merely the coarseness of the tungsten oxid powder, and has nothing to do with the coarseness of the crystals in the finished filament" (R. 65, x-Q. 285).

of materials going into the alkali-silicate addition, as set forth in the Pacz patent, R. 247, ll. 106, *et seq.*). The reason the total percentage of non-metallic material in the Pacz *ingot* may be as low as one twentieth of one per cent, as the patent states (R. 248, ll. 80-85) is because, as the patent also states (R. 247, ll. 38-40) the alkali-silicate is largely removed "by volatilization" during the conversion of the oxid into the ingot of tungsten metal. As Dr. Jeffries put it (R. 242):

> "* * * That means that the alkaline silicates contained in the Pacz oxid will boil out of the ingot while it is being heated to a high temperature and very little of that material will remain back in the finished ingot when it is ready to work.[1] It is, however, a fact that it has imparted to the ingot a peculiar characteristic which is not understood so that when that ingot is worked down into wire and heated, the filament so produced develops these large crystals."

The Pacz final product is achieved as a result of there having been a substantial amount of alkali-silicate incorporated with the tungsten *oxid* in the course of making that product, and in spite of the fact that that alkali-silicate has been largely removed by volatilization by the time the final product is reached. There is no evidence that the *oxid* in the Coolidge Battersea process contains any alkali silicate which could possibly affect the structure of the final product. The Coolidge Battersea process does not produce a large-grained, non-sagging and non-offsetting final product, because, as Dr. Jeffries said, the *oxid* of that process "could not contain more than a minute amount of alkali-silicate" (R. 239). Instead, as Dr. Jeffries also testified (R. 67, x-Q. 304), filament made in accordance with the Battersea treatment of the Coolidge patent is "very much like the thoriated tungsten filament" illustrated at Fig. 2 of our flyleaf (main brief).

Laise himself (R. 210, Q. 305) finally discarded the argument that the Battersea crucible was the source of any

[1] See also Dr. Jeffries' testimony (R. 64, x-Q. 278).

substantial amount of alkali-silicate for the oxid, and relied instead for the necessary alkali-silicate upon his flagrant reconstruction of the Battersea process, described at pages 25-26 of our main brief.

An additional argument put forward by respondents in attempted support of this Coolidge defense includes reference to the Spielholz microphotograph of filament said to have been made by that witness in accordance with the Coolidge Battersea process (Exhibit J, Fig. 5 on respondents' flyleaf). Concerning this microphotograph, respondents quote (pp. 30, 31) testimony given by Dr. Jeffries when it was first shown to him as a "pig in a poke." Since he did not know "anything about the previous heating and mechanical treatment of the material from which that micrograph was taken," he was naturally reluctant to classify it categorically (R. 80). That this caution was fully justified became obvious later when it was brought out that this filament had been burned 500 hours when this micrograph was taken. With this information at hand, and considering the grain structure of this filament as that of a filament which had been burned that length of time, Dr. Jeffries had "no hesitancy in saying that that is a sagging filament" (R. 221).

Finally and as a "complete answer to plaintiff's contentions with respect to the Coolidge-Battersea filament" (p. 35), respondents refer to the Langmuir patent No. 1,180,159 (R. 272). We are frankly unable to see how this Langmuir patent is even pertinent to the present issue. It shows a gas-filled, coiled-filament lamp, but says nothing whatever about the grain structure or the physical characteristics of the filament used. Figs. 1 and 2 of the Pacz patent in suit are described as lamps "of the gas filled type disclosed in the Langmuir Patent No. 1,180,159, and have coiled filaments * * *" (R. 248, ll. 111-114). As we have pointed out in our main brief (pp. 4, 5), it is to lamps of this character that the Pacz non-sag filament is the greatest boon. For although the life of these lamps may

not be shortened appreciably if a sagging filament is used, their efficiency is seriously impaired by the sagging (R. 24, 25; R. 247, ll. 13-20). So the effect of the Langmuir invention was to make even more acute than it previously had been, the problem which Pacz finally solved, of a commercially practical filament which would neither sag nor offset during a normal or commercially useful life of the lamp.[1]

The Coolidge Battersea defense has not been sustained.

POINT II.

None of the other prior patents relied upon by respondents affects the validity of the Pacz claims.

Schaller Patents:
(R. 306, 310)

These Schaller patents, it will be remembered, are for (R. 310, ll. 83, 84):

> "A metallic filament consisting of a single crystal throughout its whole length",

and therefore are for a very different thing than the Pacz multi-grain filament. Our discussion of these patents at pages 6, 7 and 30 of our main brief, does not require amplification at this time.

Kruger Patent
(R. 304):

This patent is discussed sufficiently at pages 31, 32 of our main brief. We add merely a denial of the respondents' assertion (p. 38) that this patent was "set up as an anticipation" during the California suit. Our copy of the record in that suit contains no reference to this Kruger patent.

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[1] What we have said here about the Langmuir patent applies as well to respondents' comments about it at pages 11 and 15 of their brief.

The Earlier Pacz Patent, No. 1,299,017:
(R. 266)

Respondents rely upon this earlier Pacz patent in support of their contention that the Pacz patent in suit is invalid for double patenting (pp. 46-50). We have shown in our main brief that the earlier Pacz patent provides no basis for such defense since it neither describes nor claims the invention of the Pacz patent in suit (pp. 33-35). We have pointed out also that in his earlier patent, Pacz was following the Coolidge teaching that a fine grain was necessary if offsetting was to be avoided.

On this latter point respondents take serious issue with us. They contend (pp. 48, 49) that we are blowing hot and cold when on the one hand we say that the grain-structure of a tungsten *ingot* has but little relation to the structure of the finished filament or to its non-sagging or non-offsetting nature, and when on the other hand, we rely upon the following statement of Pacz's earlier patent to show that his final filament is fine-grained (R. 268, l. 121—R. 269, l. 9):

> "* * * My wire also showed no tendency to offset. I have found that a test which may be applied to wire which will show whether it will offset in the lamp is to give it what is known as the cross-section test. For this test a rod of a metal of 80 mils in diameter is heated for 8 minutes in hydrogen at a temperature close to the melting point of tungsten. The rod is then fractured and the cross-section examined. If the cross-section is shiny or shows coarse grains, the filament will offset. On the other hand, if the structure is finely granular, the filament will not offset. Rods produced from the metal, as above described, when subjected to this test had cross-sections which were finely granular."

There is no inconsistency in our position in this regard. Respondents' difficulty is that they insist upon interpreting the word "rod" used in the above quotation,

as synonymous with the term ingot (slug, or billet), which it definitely is *not*. The ingot or "slug" as the earlier Pacz patent calls it (R. 267, l. 13) is the first agglomerate of tungsten metal formed in the process. It has not been subjected to any working. It is the thing to be worked. *Its* grain structure is not significant.

As described in the Coolidge patent (to which the earlier Pacz patent refers for details of this kind, R. 268, ll. 3-7), the mechanical reduction or working of this ingot or billet (which is square) to a filament of the desired size requires a large number of operations, in the course of which it passes through a number of "rod" stages.[1] Thus the Coolidge patent says (R. 257, ll. 14-18; 31-41):

> "Starting with the ¼ inch square billet, I am able with five (5) passes through the machine to obtain a circular rod of 210 mils. in diameter. From 210 mils. to 60 mils. I ordinarily proceed by ten steps. * * *
>
> "The swaging operation is continued, with continual reduction of the dies, until in six or seven more operations the wire has been reduced to thirty mils. in diameter. The temperature to which the rod is heated, which was originally at white heat, is reduced at the diameter of about 40 mils. to a yellow red and this temperature is maintained to the end of the swaging operation; that is to say until a diameter of 30 mils. has been reached."

The particular rod or wire which Pacz in his earlier patent, selected for his test of grain structure was "80 mils in diameter," meaning that it had been through nearly fifteen reducing passes since the square ingot stage.[2] So this rod was not an ingot at all, but a fully "worked" wire

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[1] Note that Dr. Jeffries refers to the ingot as a "slug" and to the wire in partly reduced stages as "rods" (R. 15, 16).

[2] We say "nearly fifteen" because, as above stated by Coolidge five passes are required to reduce the billet to a circular rod 210 mils in diameter, and ten more to reduce it from 210 mils to 60 mils in diameter.

or rod differing from the final filament only in dimensions. Its grain structure after heating, is truly representative of what it will be in the final filament.

Thus the test of this early Pacz patent for insuring that the final filament will have a finely granular structure and therefore will not offset, is an accurate test. And it shows clearly that in that patent Pacz was carefully following the Coolidge teaching that a fine grain was essential if offsetting was to be avoided. That earlier Pacz patent does not contain even a hint of the coarse-grained, non-sagging, non-offsetting filament of the Pacz patent in suit.

POINT III.

There was no prior knowledge or use of the Pacz invention.

In discussing this subject, respondents agree that defenses of this character can be established only by proof beyond a reasonable doubt (p. 44). But they say that the two prior use defenses upon which they rely have been "established by competent evidenee, contemporaneous records, etc., of wholly disinterested witnesses, beyond a reasonable doubt." This, of course, is not so. As we have shown in our main brief (pp. 35-42), there is not a particle of authenticated documentary evidence to support the recollection testimony of any of the witnesses with regard to these defenses. The only dated documentary evidence of any character that was offered by respondents in this connection, namely, the memorandum of July 13, 1916, from Laise to Cowles (R. 301), serves only to establish that these witnesses were still groping for a non-sag filament at a time when they now say they had one.

Respondents indicate at page 45 of their brief that they should not be held too strictly to the rule requiring that

prior uses be proved beyond a reasonable doubt because we did not support by documentary evidence, etc., Dr. Jeffries' statement that Pacz made his invention in the Summer of 1915. Our reply is that no need ever arose for our establishing that Pacz made his invention prior to February 20, 1917, the date he filed his application, since respondents never established by proof even approaching the standard required by the rule, that any one else knew or used his invention prior to that date.

Respondents completely misstate our position concerning the Spina lamp when they say (p. 46) that "Apparently plaintiff's only reply to the Spina lamp is that it is a single instance". We never took any such position as this. Our position is (main brief, pp. 41, 42) that no fact concerning this lamp that could be pertinent to this case, has been proved with the certainty required by the rule. There is no dependable proof as to the date when it was made or as to the extent to which it has been used, and no proof at all as to the structural character of its filament.

POINT IV.

The Pacz claims in suit are not invalid for indefiniteness, or for insufficiency of disclosure.

This subject is discussed fully at pages 42 to 50 of our main brief.

In respondents' brief, the first two points purport to be directed to this subject (pp. 6-12), but we find also under Point V (pp. 18-27) a further discussion of the sufficiency of the Pacz disclosure. This includes a detailed statement of the minor changes petitioner has made during the past twenty years in the process of manufacturing the Pacz filament on a large commercial scale. As we have shown in our main brief (p. 48), none of these changes is pertinent to any issue in this case.

So also, respondents seek to make much of the fact that certain witnesses testified of their success in failing to produce Pacz non-sag filament in following the process described in the Pacz patent. This also, is dealt with fully in our main brief (pp. 47-49).

From the testimony of one of its witnesses, Kober, respondents quote (p. 26) the statement that in 1923 while he was employed by petitioner he "found no lamp that didn't sag after flash-ageing". They neglect to quote this witness's testimony on cross-examination that by "sag after flash-ageing", he meant sag "produced by" the flash-ageing (R. 115). Flash-ageing usually produces a slight sag or droop.[1] The important point about the Pacz filament is that it does not sag substantially after the flash-ageing has been completed. Respondents also fail to quote Kober's testimony on cross-examination that the Pacz filament was "essentially non-sag" (p. 116).

We think that a complete answer to respondents' contention that the process described in the Pacz patent will not produce the product of the Pacz claims, is furnished by the following testimony of Laise, respondents' expert, in response to questions by the Court (R. 204-205):

> "Q. 268. You are ahead of me. Under that Pacz patent that you have just interpreted, do you get a commercially substantial non-sag, non-offsetting filament?
>
> "A. Certain batches will produce that and other batches will not.

---

[1] The drawn tungsten wire as it comes to the lamp making machine and is mounted in the lamp is of the fibrous character, described in the Coolidge patent as due to the mechanical working of the wire in the swaging and drawing machines (R. 258, l. 44, *et seq.*). In the case of the Pacz structure, the flash-ageing converts the fibrous state into the large grains of the Pacz wire, with non-slip contours, so that until the flash-ageing is complete, the Pacz structure is not fully formed to prevent sagging.

"Q. 269. In your opinion what percentages do and what percentages do not, if you know?

"A. Our first experience was 60 per cent good and 40 per cent bad."

In view of this large percentage of successes on Laise's very first attempts, it is absurd for respondents now to assert that the process described in the Pacz patent is not adequate for the purpose intended.

With regard to the definiteness of the Pacz claims, see our main brief, pages 42-47, and see also the last paragraph of the Pacz specification (R. 248-249) for examples of what Pacz meant when he referred to the prevention of "substantial sagging".

POINT V.

None of the additional defenses urged by respondents has any merit.

The Pacz product claims do not differ in degree only from the prior art:

In Point III of their brief, respondents seek to give the impression that Pacz's invention is merely a filament which does not sag so much as some prior filaments. That is not the case. Pacz, in his patent in suit, was the first producer of multi-grain filaments ever to defy the Coolidge teaching that a fine grained structure was essential if offsetting was to be avoided. The coarse, irregularly-contoured grain structure, which he found gave him a filament that was at once non-sagging and non-offsetting, was a *new* thing. It was something new in *kind*, and not merely in *degree*. It is that new structure that is covered by the Pacz product claims. We believe it to be clearly patentable subject matter.

The Pacz product is an invention distinct from the process of making it:

Respondents make a brief argument (Point IV, pp. 16, 17) that the Pacz claims are invalid because there was no inventive act for the product distinct from the process of making it. This argument is wholly without merit.

Pacz was the first to produce a filament having the grain structure and characteristics set forth in his product claims. He was the inventor of this new and useful product and was entitled to claims covering it, quite irrespective of the fact that he also invented a method for producing it. As was said in *Dunn* v. *Toronto,* 259 Fed. 258, 261 (C. C. A. 6):

> "Certain it is, in view of the weight of authority and the latest decisions, that the inventor of a new and useful product or article of manufacture may have a patent which covers it and gives a monopoly upon it regardless of great variations in the method of making" (cases cited), "and that in the ordinary and typical case, the method and the product are separable inventions, supporting separate patents, one of which may be valid and the other not (Rubber Co. *v.* Goodyear, 76 U. S. (9 Wall.) 788, 19 L. Ed. 566)."

Respondents' attempt to bring this case within the rule of *General Electric Co.* v. *DeForest,* 28 F. (2d) 641, (C. C. A. 3) is futile. In that case claims of the Coolidge patent for "ductile tungsten" were held invalid because (p. 643):

> "* * * what he [Coolidge] discovered were natural qualities of pure tungsten. Manifestly he did not create pure tungsten, *nor did he create its characteristics.* These were created by nature and on that fact finding the reasoning as to the validity of the product claims will be based." (Emphasis ours.)

In that case the Court concluded that ductility was one of the natural characteristics of pure tungsten, for unless tungsten had been ductile Coolidge could not have drawn it.

In the present case the *structure* of the Pacz filament was not inherent in tungsten. It had never before existed. And here there is no attempt to claim the natural qualities of pure tungsten. Pacz created a tungsten filament having a *structure* that never existed before, and, as a result, a *combination of qualities* that never existed before. There is nothing in the *DeForest* case, cited above, that casts any doubt whatever upon the patentability of this new filament.

The Pacz patent is not for a monopoly on filaments having merely certain characteristics. Pacz does not claim every filament which does not offset and does not sag. The invention to which his patent is limited is a new and useful structural form whereby a new and very useful result is secured.

Conclusion.

None of the numerous defenses urged by respondents against the validity of the Pacz claims, has merit.

Respectfully submitted,

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